CID Memo 2-97
1 December 2001

TEMPORARY PORTABLE GENERATOR INSTALLATIONS ON DEEP DRAFT VESSELS

REFERENCE: (a) MVI Policy Ltr No. 16-90 dtd 12Jul97 (CANCELLED)

DIRECTIVES AFFECTED: CIDIG MEMO #31 dated 15Jul97 is superceded.

PURPOSE: This policy establishes guidelines for installation of temporary portable generators on deep draft vessels to supplement or temporarily replace existing units.

BACKGROUND: The installation of temporary portable generators (containerized generators) to be used in conjunction with existing generators, or to temporarily replace existing generators, often becomes necessary if a vessel is to continue to operate. Reference (a), which has been canceled, established requirements for 12 Sea-Land vessels to install temporary portable generators while the existing generators were being replaced. In our zone, we have reviewed and approved several proposals to install portable generators while the existing generator(s) were being repaired. Reference (a) has been used as guidance in the absence of a formal policy. This memo establishes a uniform policy to be used when reviewing a proposal for installation in our zone.

DISCUSSION: Removal of a large vessel from service while generator repairs are in progress is often not necessary from a safety perspective and highly undesirable from a profitability perspective. When repairs will require more than a couple of days to complete, it becomes profitable to install a temporary generator and keep the vessel in service. When this is to be done, a number of safety issues need to be addressed.

IMPLEMENTATION: A DETAILED proposal outlining the installation of the portable generator MUST be submitted by the vessel owner. A proposal submitted which does not clearly address all the safety concerns outlined below, will only slow down the review process and cause wasted time for the customer as well as ourselves. Upon completion of the review of the proposal, an on-board inspection of the installation will be made and a CG-835 will be issued to require an inspection once the existing generator(s) is back on line. The following items must be addressed in the owner's proposal:

1. Generator and prime mover approval. ABS approval or equivalent to show suitability for marine use.

2. Generator capacity (kW and voltage rating). The unit must be able to carry the load of the unit it is replacing.

3. Generator control. Portable generator units are normally equipped with remote governor speed controls, automatic voltage controls, and remote shutdowns (see next section). Operation of these systems must be proven at the main switchboard or Engine Control Console (ECC). If this is not possible, and the installation will require control at the unit during operation, additional personnel (manning) will be required.

4. Generator alarms/shutdowns. The unit must be fitted with an overspeed trip and low oil pressure shutdown/alarm. These alarms will require testing in the presence of a Marine Inspector. Alarms are to be fitted at a manned watch location, typically at the main switchboard. If the portable unit is intended to be used (or could be used) in parallel operation with other generators, then parallel operation will need to be demonstrated along with the proper operation of the reverse current trip.

5. Power cable. A careful review of the proposed power cable must be made. The proposal should include the size, type, ampacity, temperature rating, and manufacturer of the cable to be used. The proposed cable should be checked for suitability for intended service and also for proper ampacity as per the National Electric Code (NEC), IEEE-45, or U.S. Navy Guide to Shipboard Cable. Typical installations have used runs of 4/0 AWG Type W portable power cable coupled together to meet the amperage requirements. The cable run must be secured, protected from damage, and made water/fire tight at any penetrations of bulkheads or decks.

6. Overcurrent protection. The circuit breaker setting AT THE BOX will be adjusted to not exceed the current carrying capacity of each individual phase. In other words, in a three phase installation, with cable capacity rated at 800 Amps each, the circuit breaker AT THE BOX will be set no higher than 800 Amps. The package units that have been used lately contain an adjustable circuit breaker making adjustments to the trip setting relatively easy. Remember that the setting of the AT THE BOX circuit breaker must be set at or above the setting of the generator breaker at the main switchboard.

7. Fire protection. The generator enclosure shall be fitted with a manual, or automatic with manual feature, activated fixed fire extinguishing system. The system must be professionally serviced within the past year. Ventilation dampers and the shutdown of the engine should operate automatically upon activation of the fixed extinguishing system. Alternatively for manual controlled systems, the controls may be fitted next to the manual activation control with instructions that include shutting off the fuel supply and closing the vent dampers before activation of the extinguishing system.

8. Fuel supply. Fixed piping may be installed. Suitable portable hose with a ground wire may be used to manually refill the tank which is part of the portable unit. This hose must incorporate an automatic shut off type nozzle. Fuel tanks should be fitted with a flame screen and a remote fuel shutoff when the tanks are located within the generator enclosure. Portable containment must be provided for any transfer connections made with hose. Instructions for re-fueling the unit will be posted at the container. Any system installed must not compromise existing emergency fuel installations (emergency generator fuel supply).

9. Generator location. The unit should be enclosed in a container and located in an area of the vessel that provides as much protection from weather and seas as possible. The container should be secured to prevent shifting in a seaway. If installation is to take place on a tanker, the location must be outside the hazardous locations as defined in 46 Code of Federal Regulations (CFR) 111.105.

10. Emergency use. If the portable unit is substituting for an emergency generator, then the unit must be capable of automatic start and automatic load assumption. In addition to the alarms/shutdowns noted in paragraph 4, the unit must be equipped with a high jacket water alarm.

11. Surveillance. The engineering watch should check the unit at least once each hour during operation.

12. Periodic testing. The generator set should be tested periodically to ensure that it can acquire and maintain the electrical load.